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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,192	10/11/2005	James Martin	2088.00700014.0195 PCT US	4407
7590 WesternGeco 10001 Richmond Avenue Houston, TX 77042			EXAMINER LOBO, IAN J	
			ART UNIT 3662	PAPER NUMBER
			MAIL DATE 05/12/2009	DELIVERY MODE PAPER

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/529,192  
Filing Date: October 11, 2005  
Appellant(s): MARTIN ET AL.

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Jeffrey A. Pyle  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed January 15, 2009 appealing from the Office action mailed April 2, 2008.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

The amendment after final rejection filed on June 13, 2008 has been entered.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

### **(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

### **(8) Evidence Relied Upon**

5,359,575                                      WILLIAMS et al                                      10-1994

Altes, Richard A. "Radar/Sonar Acceleration Estimation With Linear-Period Modulated Waveforms," *IEEE Transactions on Aerospace and Electronics Systems*, Vol. 26, No. 6, 11/1990

Ashley et al. "Own Doppler Nullification (ODN) in Sonars using Linear Period Modulated (LPN) Wideband Signals", *IEEE Pacific Rim Conference on Communications, Computers and Signal Processing*, 6/1989

### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 5, 7-17, 20, 21 and 23-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Williams et al ('575).

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Per independent claims 1 and 17, the patent to Williams et al discloses a method and apparatus for determining a propagation time delay (col. 1, lines 27-33) where at least one source (236A-E) generates a plurality of separable (col. 3, lines 50-51 and 64-68), modulated Doppler invariant signals (col. 8, lines 24+), a receiver (236A-E) located along a seismic cable receives the at least one modulated Doppler invariant signal from the source and a signal processing unit (see Fig. 3). The time delay between the received signal and generated signal are then determined using the signal processing unit.

Dependent claims 4, 5, 7-16, 20, 21 and 23-27 are further anticipated by the structure and method disclosed by Williams et al. It is pointed out that appellant has not separately argued the merits of any of the above dependent claims.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al ('575) when taken in view of the IEEE articles to Altes or Ashley et al.

Claims 2, 3, 18 and 19 differ from the system and method disclosed by the aforementioned Williams et al patent by claiming that the modulated Doppler invariant signal is a modulated linear period modulated signal.

The IEEE article to Altes discloses that for coherent, long duration sonar signal processing detection performance may be degraded unless the transmitted waveforms are acceleration tolerant. The IEEE article to Ashley et al discloses that wideband waveforms in highly reverberant sonar environments linear period modulated (LPM) signals provide added Doppler invariant characteristics especially with the advent of modern digital signal processing with matched filters.

Thus, in view of either Altes or Ashley et al, it would have been obvious to one of ordinary skill in the art to modify the highly reverberant sonar environment disclosed in the Williams et al system or method by utilizing a modulated linear period modulated signal as the Doppler invariant signal.

### ***Response to Arguments***

It is first pointed out that the dependent claims 2-5, 7-16, 18-21 and 23-27 stand or fall with the independent claims 1 and 17 since appellant has not separately argued the merits of any of the dependent claims. Further, it is noted that appellant has not mapped out any of the aforementioned dependent claims.

The crux of appellants arguments against Williams et al is appellants contention that Williams et al does not disclose that the plurality of modulated Doppler invariant signals are "separable". Appellant argues that, rather than being separable, Williams et

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al discloses the Doppler invariant signals are "separated". Appellant cites paragraph [0031] of the instant application and highlights the following the passage "In particular, the plurality of orthogonal Doppler invariant acoustic signals 130, 215 may be transmitted and/or received simultaneously". It is noted first that examiner does not see a difference between "separable" and "separated" within the context of transmitted pulses. However, it would appear that the aforementioned passage differentiates separable from separated by using the wording "simultaneously" when referring to transmitted and received signals. In such a context (using simultaneously) there may be a distinction between the claimed "separable signals" and Williams et al's "separated signals" since then the use of separable is in conjunction with simultaneous transmission. However, this is not what is instantly claimed and thus, appellant's arguments are not commensurate in scope with what is actually claimed.

With respect to the 35 USC 103 rejection, appellant first argues that the references to Altes and Ashley et al do not disclose "a plurality of separable, modulated Doppler invariant signals". Agreed. However, the rejection is based upon the combination of Altes or Ashley et al with Williams et al and as disclosed above, Williams et al does disclose a plurality of separable, modulated Doppler invariant signals.

Applicant further argues that Altes and Ashley et al are outside the scope and content of the prior art. However, it has been held that a prior art reference must either be in the field of appellant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the appellant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24

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USPQ2d 1443 (Fed. Cir. 1992). In this case, the radar/sonar field of Altes and Ashley et al are well within appellant's field of endeavor since sonar is directed to underwater sound (acoustic) transmission and detection which is exactly what the environment of appellant's claims pertain to, specifically, underwater acoustic ranging (transmission and detection). Appellant's argument that the present invention's field of endeavor (seismic survey) is not the same as that of Altes and Ashley et al (military) is also not convincing since both seismic and underwater sonar, whether military or commercial (i.e fish finders), are both in the class of underwater acoustic communications and well within the purview of one with ordinary skill in the art.

Finally, it is noted that appellant's argument with respect to the differences between seismic surveying and military applications of sonar is not fully commensurate in scope with the claims since the argument cites seismic surveying but the claims only mention of seismic "surveying" is the phrase that a receiver is positioned along "a seismic cable". This hardly suffices as seismic surveying.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



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